DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 69.28

WELDING INSPECTION REPORT

Resident Engineer: Siegenthaler, Peter
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-016983
Date Inspected: 29-Aug-2010

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island

OSM Arrival Time: 1900
OSM Departure Time: 700
Location: Shanghai, China

CWI Name:	See Below			**CWI Present:**	☑ Yes	☐ No	
Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**Rod Oven in Use:**	☑ Yes	☐ No	☐ N/A
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☑ Yes	☐ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Approved WPS:**	☑ Yes	☐ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: OBG

Summary of Items Observed:
CWI Inspectors: Mr. Li Yang (ZPMC), Mr. Huang Wen Guang (ABF)

On this date CALTRANS OSM Quality Assurance (QA) Inspector, Mr. Paul Dawson, arrived on site at the Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai China, for the purpose of monitoring welding and fabrication of the San Francisco / Oakland Bay Bridge (SFOBB) components. This QA Inspector observed the following:

OBG BAY 9

This QA Inspector monitored welding of closed rib Production Monitoring Test (PMT) representing “Mock Up” OBG segment 14E deck plates DP3169(PL3482A/B)-001 and DP3157(PL3132A/B)-001 which were welded using one single base plate starting at around 00:11 hours using gantry #1. This QA Inspector observed four ZPMC welders using welding procedure specification WPS-B-T-2342-U1(Urib)-5 using the gas metal arc welding process for the root pass and submerged arc welding process for the cover pass of partial penetration groove welds on four PMT closed rib welds at the same time. ZPMC had multiple welding manipulators attached to a movable gantry that runs on a track along the length of the stiffener plates. This QA Inspector observed a welding travel speed of approximately 530 mm per minute for the root passes and 531 mm per minute for the cover passes. As the welding commences, each of the welders was responsible for one of the welding heads. Welder Mr. Yang Yongzeng, stencil 059418 completed the root pass of weld #1 with a welding current of approximately 370 amps and 31.1 volts and the cover pass welding current of approximately 690 amps and 25.1 volts. Welder Mr. Song Yinshu, stencil 059421 completed the root pass of weld #2 with a welding current of approximately 370 amps and

31.8 volts and the cover pass welding current of approximately 700 amps and 25.0 volts. Welder Mr. Xu Guoyun, stencil 059443 completed the root pass of weld #3 with a welding current of approximately 375 amps and 30.8 volts and the cover pass welding current of approximately 690 amps and 24.6 volts. Welder Mr. Jiang Shuangchen, stencil 201788 completed the root pass of weld #4 with a welding current of approximately 380 amps and 30.6 volts and the cover pass welding current of approximately 695 amps and 24.8 volts. This QA Inspector performed random visual inspection of the weld joint fitups, root passes and cover passes and items observed appear to comply with project specifications. Following completion of the welding, ABF CWI Inspector Mr. Huang Wen Guang marked a 500 mm length on each of the welds as being the areas that are to be representative of this PMT test. This QA Inspector observed ZPMC Ultrasonic (UT) Inspector Mr. Xu Wei performed ultrasonic inspections of each of the six welds. Following ZPMC's UT acceptance the QA Inspector marked a total of 10 locations where macroetch samples were to be obtained. ZPMC then cut and prepared macroetch samples. ABF CWI Inspector Mr. Huang Wen Guang visually inspected these macroetch samples and documented their acceptance on the ZPMC Production Monitoring Test Plate Inspection Report sheet dated August 30, 2010. This QA Inspector visually inspected each of these macroetch samples and items observed by the QA Inspector appeared to comply with project specifications and the QA Inspector documented this inspection on the "Production Monitoring Test Plate Inspection Report". See the photograph below for additional information.

OBG Segment Trial Assembly

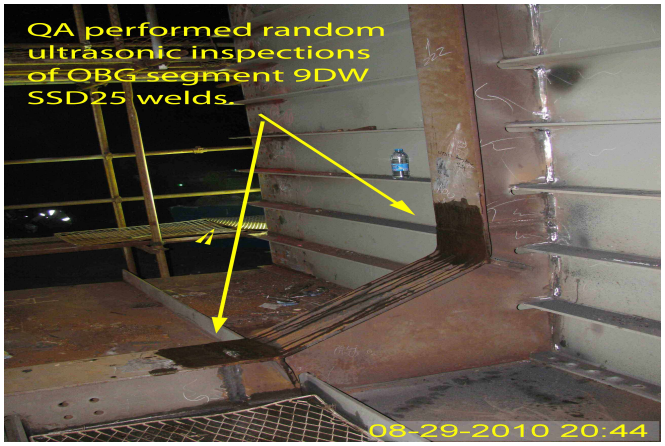
ZPMC issued "Inspection Notification Sheet" number 06525 informing Caltrans QA that ZPMC is requesting ultrasonic inspections (UT) of the complete joint penetration "Cross Beam Extension" welds on OBG segment 9DW in support of "Tagging in Process". The notification document did not list any of the weld numbers that were to be UT inspected. When this QA Inspector arrived at OBG segment 9DW a ZPMC worker showed this QA Inspector a list of 17 weld numbers that were to be UT inspected. This QA Inspector performed random visual and ultrasonic inspections of the following welds: SSD25-PP081-032, SSD25-PP081-100, SSD25-PP081-117, SSD25-PP081-147 and SSD25-PP081-174. Items observed by this QA Inspector appear to comply with AWS D1.5 UT requirements. For additional information on these inspections see this QA Inspector's TL6027 Ultrasonic Test Report.

This QA Inspector observed ZPMC welder Mr. Tian Zhaoquan, stencil 045246 used shielded metal arc welding procedure WPS-345-SMAW-4G(4F)-FCM-Repair-1 to make repair welds of OBG segment 9DW stiffener weld SEG059D-073. This stiffener was located at the top of opening where cross beam CB13 is to be attached. This weld appeared to have been recently been ground to remove MT indications. This QA Inspector measured a welding current of approximately 165 amps, the base material was preheated with a torch prior to welding and Mr. Tian Zhaoquan appeared to be certified to make this weld. This QA Inspector observed the welding electrodes were stored in a heated portable electrode storage container. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Liu Heping, stencil 040601 used shielded metal arc welding procedure WPS-345-SMAW-3G(3F)-FCM-Repair-1 to make repair welds of OBG segment 9DW SEG059D-073 stiffener welds. The stiffener welds were located at the top of opening where cross beam CB13 is to be attached. These welds had recently been ground to remove MT indications. This QA Inspector observed Mr. Liu Heping appeared to be certified to make this weld. This QA Inspector observed the welding electrodes are being stored in a heated portable electrode storage container. Items observed on this date appeared to generally comply with

applicable contract documents.

ZPMC QC Inspector Mr. Wang Li Yang informed this QA Inspector that he was monitoring welders stencil 500433, 59733, 43468 and 57333 as they were welding temporary alignment plates to various weld joints between OBG segments 10AE and 10BE.



Summary of Conversations:

See Above.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Eric Tsang phone: 150-0042-2372 , who represents the Office of Structural Materials for your project.

Inspected By:	Dawson,Paul	Quality Assurance Inspector
Reviewed By:	Carreon,Albert	QA Reviewer